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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/530,077	09/22/2005	Marcos Giovanni Bortoli	04306/0202707-US0	7459

7278 7590 02/10/2011  
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EXAMINER
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KASTURE, DNYANESH G

ART UNIT	PAPER NUMBER
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3746

MAIL DATE	DELIVERY MODE
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02/10/2011

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/530,077	BORTOLI ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	DNYANESH KASTURE	3746	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 29 November 2010.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 5.6 and 8-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 5.6 and 8-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Specification***

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract ( filed 3/20/2008) should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "**said**," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

2. The substitute abstract filed on 3/20/08 has legal phraseology: "said valve comprising".

### ***Claim Objections***

3. The previously made objection to Claim 5 is hereby withdrawn in view of cancellation of Claim 1 and change of claim dependency to newly presented claim 10. Additionally, the previously made objection to Claim 1 is withdrawn in view of cancellation of this claim and since the word "intensely" was replaced with the word "rapidly" in newly presented Claim 10. However, the previously made objections to Claims 8 and 9 are reaffirmed because applicant did not address the objections in the previous office action. Claim 8 was objected to because the last line was not completed as suggested – is larger in its region adjacent to the fixation end portion of the flexible

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vane THAN ELSEWHERE --. Claim 9 was also objected to; the phrase "configured to be distributed the" is not in proper idiomatic English. Additionally, Claim 11 is objected to because the status identifier of this claim is missing and should be "(New)".

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 5, 6 and 8 – 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. In Re Claim 10, the phrase "a substantially semi-elliptical contour with its vertex being tangent with the fixation end portion" is indefinite due to the following: When an element is referred to as being tangential with an object (fixation end portion), the element is usually a curve or a surface or a line; but it never is a POINT - which is what "vertex" is as referred to in the claim. How can a point (vertex) be tangent to anything ? Even if an imaginary line was drawn demarcating the border between the higher bending region and the fixation end portion, it is this line that would be tangential to the semi-elliptical contour (at the vertex). THE POINT OF CONTACT between this line and the contour would be the vertex.

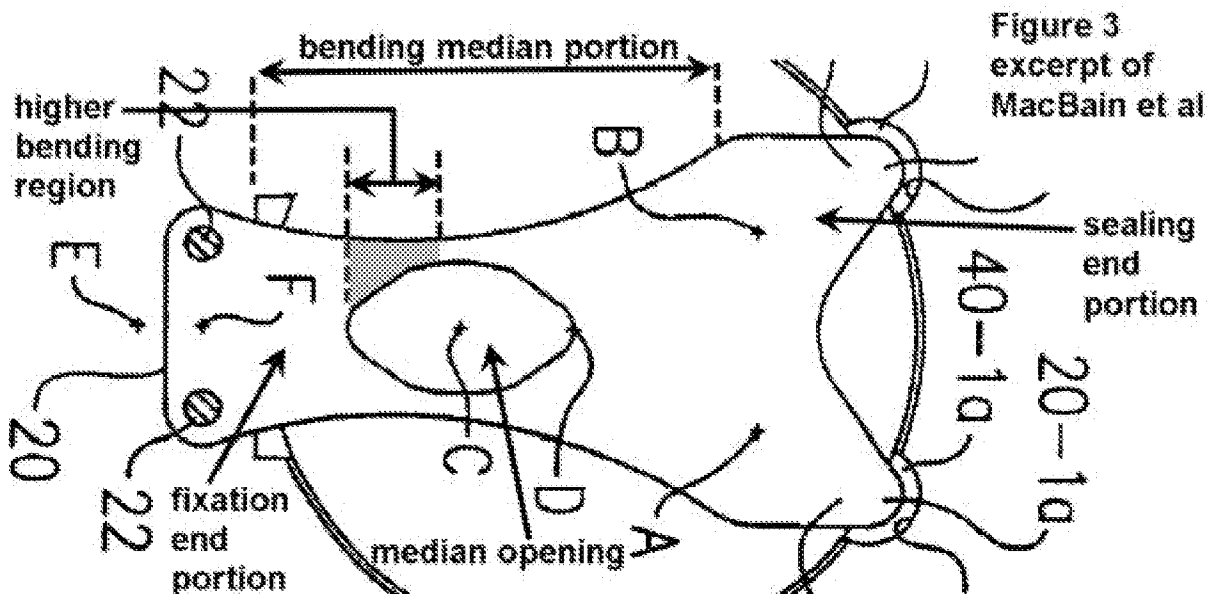
**Claim Rejections - 35 USC § 102**

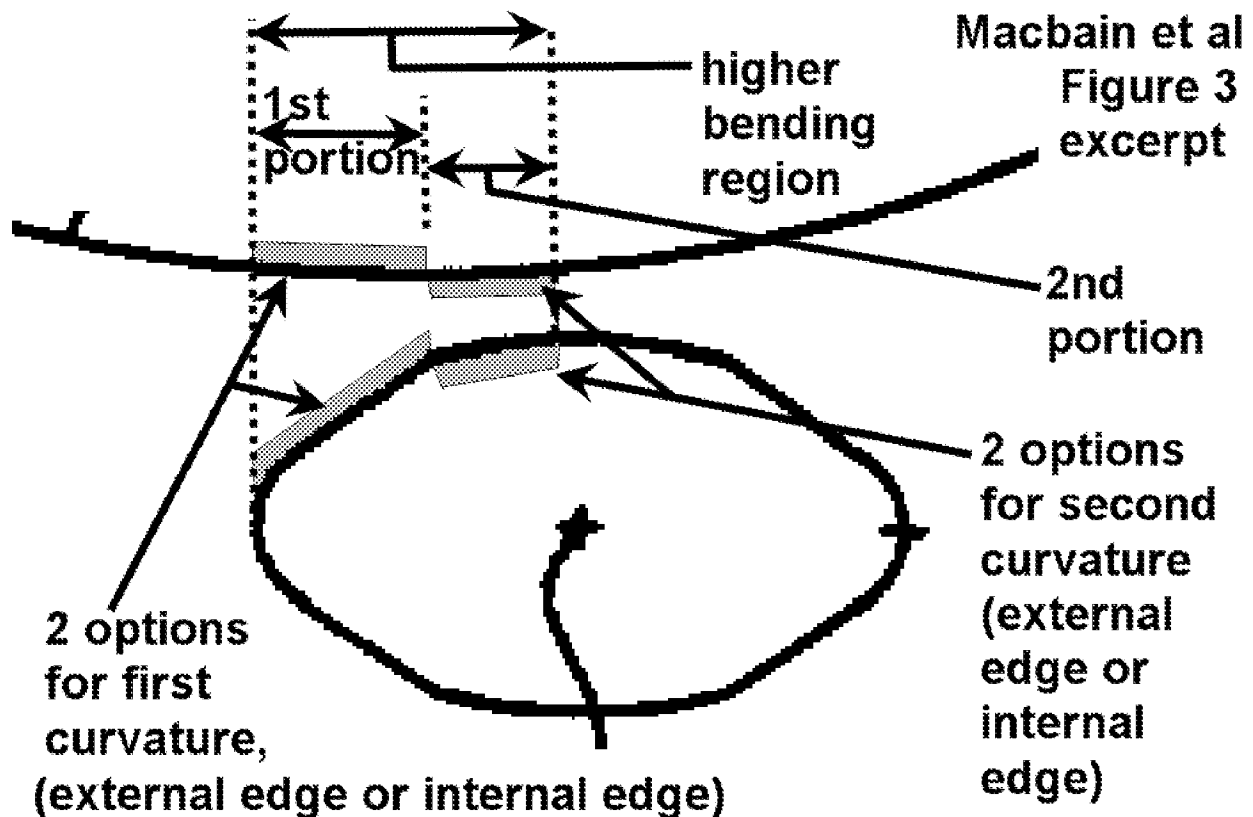
7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

8. Claims 10, 5 and 9 are rejected under 35 U.S.C. 102(e) as being anticipated by MacBain et al (PG Pub US 20030068245 A1, filing date: October 5, 2001)





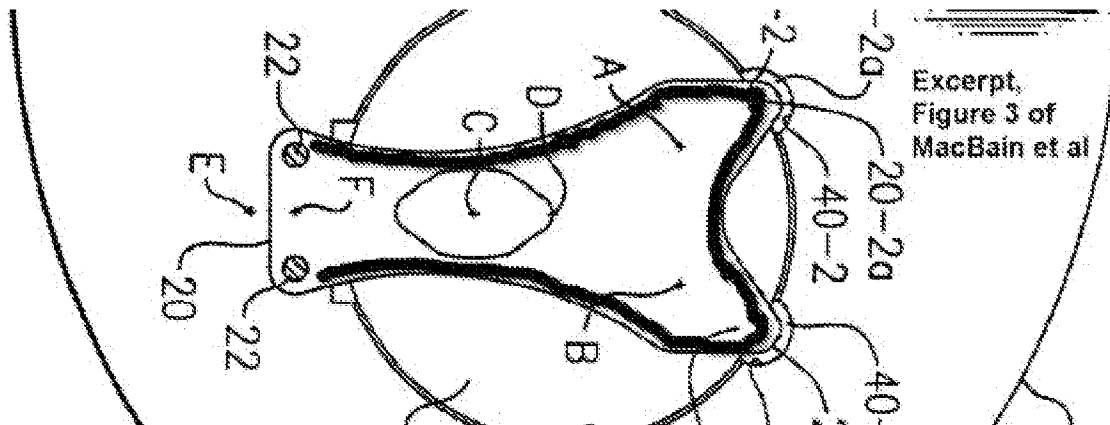
9. In Re Claim 10, with reference to Figure 3 annotated above, MacBain et al discloses a suction valve for a small hermetic compressor (Abstract states “compressor suction valve”) of the type presenting a compression cylinder (D) which has an end closed by valve plate (30), said valve comprising:

- a fixation end portion (annotated) to be affixed to the valve plate;
- a bending median portion (annotated) provided with a median opening (annotated) aligned with a discharge orifice (see Figure 1); and
- a sealing end portion (annotated) operatively associated with the suction orifice provided in the valve plate,

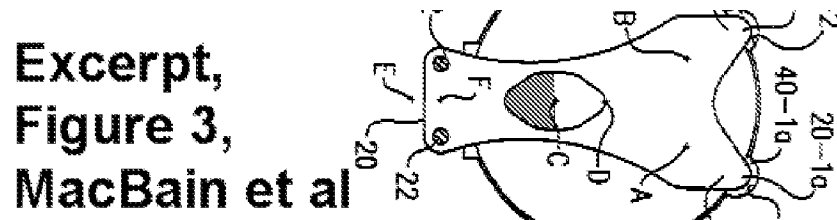
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- a higher bending region (as annotated by the shaded area, the width of which decreases along the higher bending region) of the flexible vane of the valve
- a first portion of the higher bending region as depicted above, bounded by at least one curved edge (first curvature) represented by the external edge of the flexible vane; (the shaded rectangles in the annotated first and second portions above highlight the options for the first and second curvatures)
- a second portion of the higher bending region as depicted above, bounded by the curved external edge and curved internal edge (second curvature)
- the claim limitation of the distance between an external edge of the flexible vane and its adjacent internal edge portion of the median opening diminishes more rapidly in a first portion, is anticipated by the steep decline in the first portion when compared to the gradual decline in the second portion; from a maximum value close to the end fixation portion, to a minimum value, close to the boundary of the higher bending region of the flexible vane,
- wherein the flexible vane is configured to distribute opening forces along the higher bending region (no areas of stress concentration) allowing the flexible vane to be bent along the higher bending region in an open position, and
- the bending median portion and sealing end portion “presents” a U shape as annotated below, with the legs being symmetrical about a longitudinal axis of the flexible vane, are of equal length and are united by the fixation end portion as depicted:

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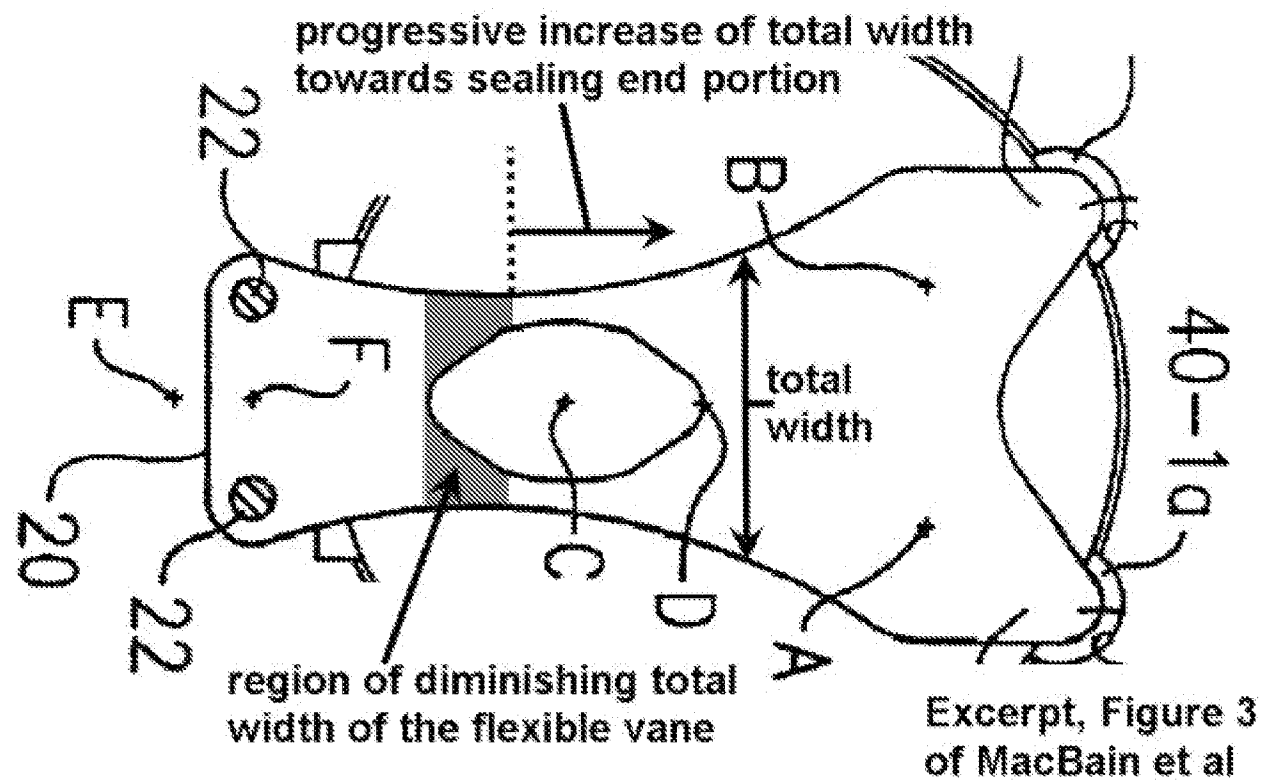
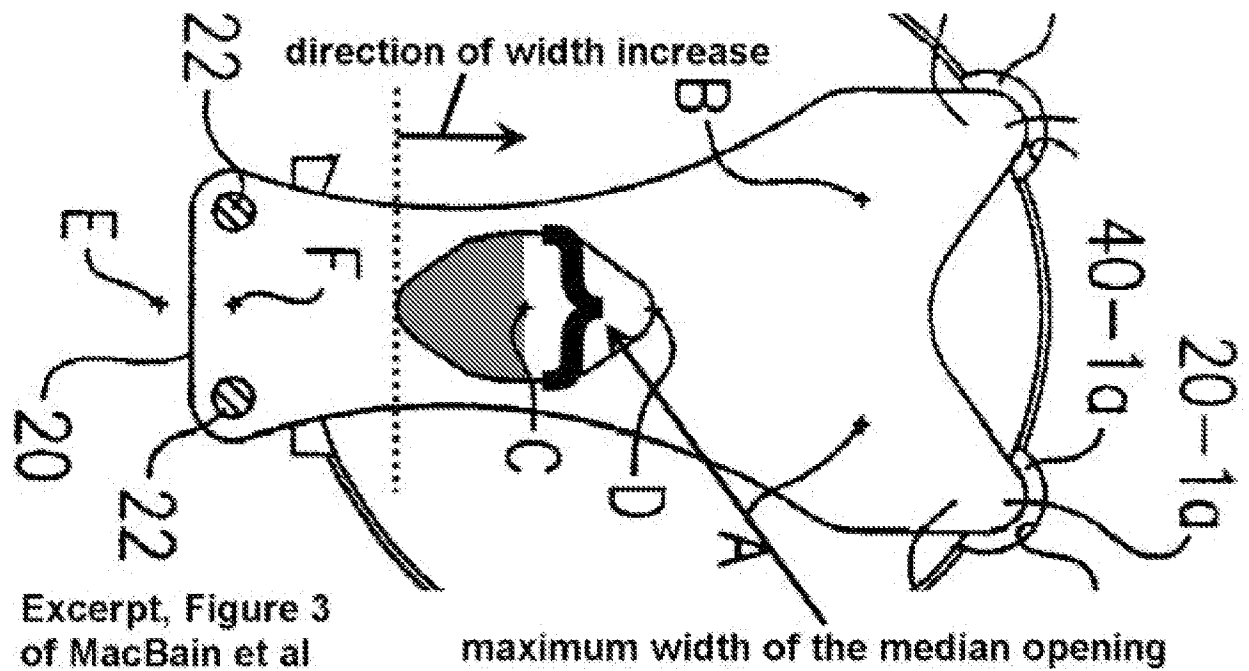
(Note that the limitation “presenting” could also be broadly interpreted as enclosing a U shape, since the outline is not being claimed as U shaped. Further, the “united by” limitation could be interpreted as bringing the two legs together.)



- wherein the median opening of the valve presents, along the higher bending region, a substantially semi-elliptical contour (the curved boundary of the shaded area in the annotated figure above is substantially semi-elliptical), and as best understood, “its vertex being tangent with the fixation end portion “



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- wherein the width of the median opening of the flexible vane increases, progressively (see annotations above), from a region adjacent to the fixation end portion (22) to at least the opposite boundary of the higher bending region, whereas the total width of the flexible vane diminishes from the fixation end portion, at an initial portion (see shaded area and annotations above), and then it begins to progressively increase as depicted towards the sealing end portion, from before the opposite boundary of the higher bending portion

10. In Re Claim 5, as discussed in Claim 1, the distance diminishes more rapidly close to the fixation end as implied by the steep decline as compared to the gradual decline in the second portion.

11. In Re Claim 9, the forces are not concentrated in the region of the bending median portion that is adjacent to the fixation end portion because the thickness is more at the base of the high bending region and the curves at the relevant boundaries are smooth.

### ***Claim Rejections - 35 USC § 103***

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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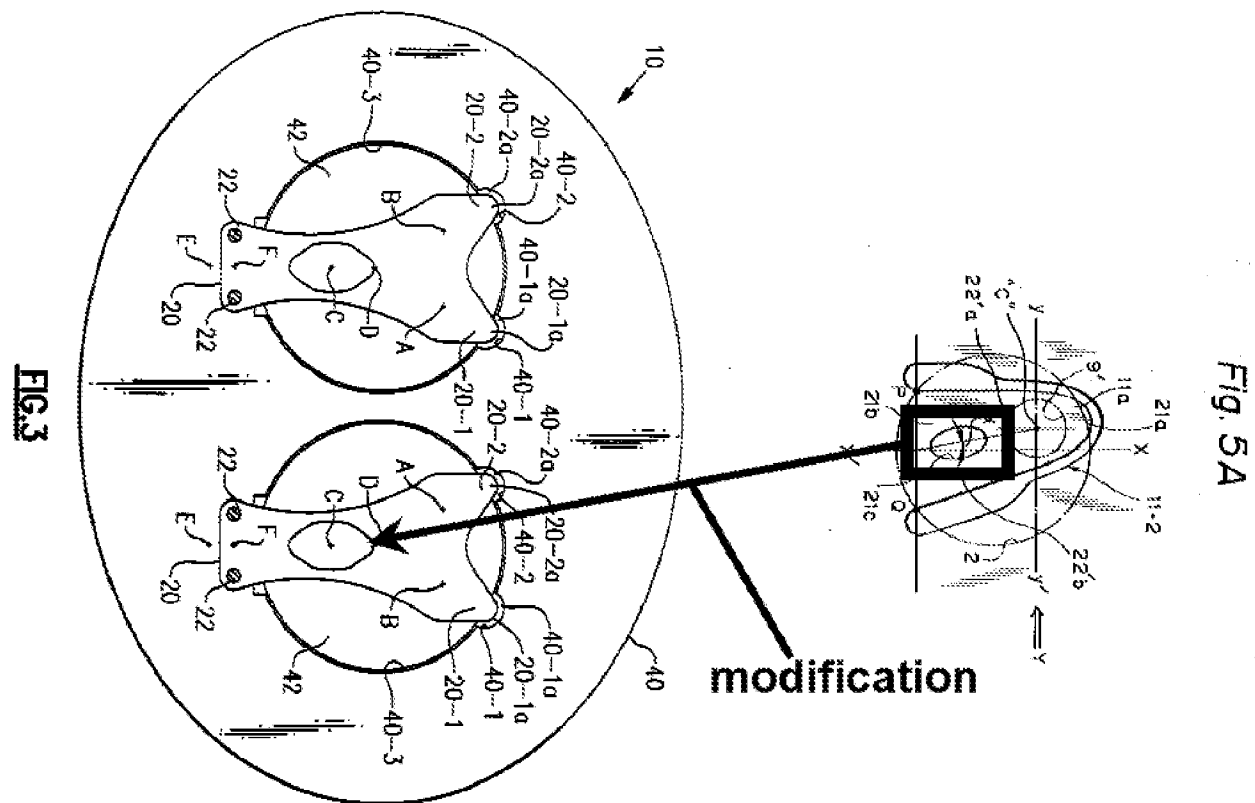
invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 6 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over MacBain et al (PG Pub US 20030068245 A1, filing date: October 5, 2001)

14. In Re claim 6, MacBain et al as applied to claim 1 discloses the claimed limitations except for the length of the higher bending region being 50 %. It would have been obvious to a person having ordinary skill in the art at the time of the invention to choose a value of 50 % since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art - MPEP 716.02 (b) [R2].

15. In Re claim 11, MacBain et al as applied to claim 1 discloses all the claimed limitations except for the polynomial equation determining the width as claimed. However, fitting a polynomial to form a smooth curve along a set of data points is a well known statistical technique. It would have been obvious to one of ordinary skill in the art at the time of the invention to fit a polynomial to the outline of the vane (which would also make the width a polynomial) because applying a known technique to a device ready for improvement would be obvious when the results are predictable (MPEP 2141, Section III, Rationale D), and because applicant has admitted in the 03/28/08 communication that it is within the capability of a person skilled in the art to determine the coefficients of the polynomial from rigidity and bending parameters.

16. Alternatively, Claim 10 and Claim 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over MacBain et al (PG Pub US 20030068245 A1, filing date: October 5, 2001) in view of Ikeda et al (US Patent 4,764,091 A)



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(elliptically shaped opening) of Ikeda et al because the modification yields predictable results (MPEP 2141, Section III, Rationale B: "Simple substitution of one known element for another to obtain predictable results") since both valves relate to the suction side of reciprocating piston compressors.

20. In Re claim 8, "cut from a support blade" is a product by process limitation. In accordance to MPEP 2113, the method of forming the flexible vane (by cutting from the support blade) is not germane to the issue of patentability of the device itself. Further, "in order to" is an intended use recitation that does not structurally limit the claim. Alternatively, MacBain et al as applied to claim 10 discloses all the claimed limitations except for a gap, between the cutting edge of the support blade and the external edge of the valve, that is larger adjacent to the fixation end portion of the flexible vane.

21. Nevertheless, Ikeda et al discloses a gap that is larger at the fixed end of the vane than its apex.

22. It would have been obvious to a person having ordinary skill in the art at the time of the invention to form the valve of MacBain et al as a cut from a support blade with a gap, between the cutting edge of the support blade and the external edge of the valve, that is larger adjacent to the fixation end portion of the flexible vane as taught by Ikeda et al because the modification yields predictable results (MPEP 2141, Section III, Rationale C: "Using a known technique to improve similar devices") since both valves relate to the suction side of reciprocating piston compressors.

***Response to Arguments***

23. Applicant has argued in the last paragraph on Page 5 of Applicant's Response that MacBain does not allegedly show Applicant's specifically configured vane and does not disclose the advantages of the configuration as taught by Applicant, and that the Examiner has allegedly used hindsight to reject Applicant's claims.

24. Examiner's Response: As mentioned in the 112 rejection, it is not clear what applicant is claiming in the limitation: "a substantially semi-elliptical contour with its vertex being tangent with the fixation end portion", and how this limitation is shown in applicant's specifically configured vane but not shown by the MacBain or other references. With regards to the hindsight argument, it is generally made when a COMBINATION of references is being used to reject a claim - see MPEP 2145, Section X. The independent claim presented in the 03 May 2010 amendment was rejected under 35 USC 102, which does not involve a combination of references. A hindsight argument cannot be used when one reference anticipates all the claimed limitations. With regards to the argument that MacBain does not disclose the advantages of the configuration as taught by applicant, MPEP 2145, Section II clearly states that a prior art reference cannot be overcome merely by recognizing additional advantages or latent properties present in the prior art.

25. Applicant has argued in the first paragraph on Page 6 of Applicant's Response that an example of hindsight is when the examiner allegedly found that a configuration

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is “implied” by the steep decline in the first portion as compared to the gradual decline in the second portion.

26. Examiner’s Response: In order to further clarify the examiner’s position with regards to the phrase “implied by”, the corresponding text referred by applicant in the last paragraph on Page 5 of the previous office action is rephrased alternatively as follows: the steep decline in the first portion as compared to the gradual decline in the second portion of MacBain reads on the claim limitation “wherein the distance between an external edge of the flexible vane and its adjacent internal edge portion of the median opening diminishes more intensely in a first portion”. The claim limitation is therefore inherent in the MacBain reference. The rejection being referenced by the applicant was clearly made under 35 USC 102. Therefore, regardless how the phrase “implied by” is interpreted, a hindsight argument can never be used since no modification to the reference (or combination with other references) is being made in that rejection. The examiner reiterates MPEP 2145, Section II which states that a prior art reference cannot be overcome merely by recognizing latent properties or additional advantages present in the prior art.

27. All of applicant’s arguments have been carefully considered, however they are not persuasive for the reasons above. The examiner therefore respectfully disagrees with applicant’s arguments.

***Conclusion***

28. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DNYANESH KASTURE whose telephone number is (571)270-3928. The examiner can normally be reached on Mon-Fri, 9:00 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on (571) 272 - 7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devon C Kramer/  
Supervisory Patent Examiner, Art  
Unit 3746

DGK